

Claims

1. (Original) A first illuminating optical system, comprising:
 - a first dichroic mirror for receiving a light emitted from a lamp, polarization components of the light being arrayed in one direction, and transmitting B (Blue) light and reflecting G (Green) and R (Red) lights;
 - a second dichroic mirror for receiving the light, whose optical path is separated, and transmitting the R light and reflecting the G light;
 - first, second and third wire grid type PBSs (Polarized Beam Splitters) for transmitting the R, G, and B lights, respectively;
 - first, second, and third LCoS (Liquid Crystal on Silicon) panels for changing a phase of respective lights transmitted through the first, second, and third wire grid type PBSs, and reflecting the phase changed lights, and
 - an X-prism for receiving the R, G, and B lights that are reflected twice by the first, second, and third LCoS panels first, followed by the first, second, and third wire grid type PBSs, and combining the R, G, and B lights and permitting the combined lights to incident on a projection lens.
2. (Original) The reflective illuminating optical system according to claim 1, wherein to increase contrast effects, first, second, and third polarization plates for polarizing the R, G, and B lights are inserted in between the X-prism and the first, second, and third wire grid type PBSs.
3. (Original) A reflective illuminating optical system, comprising:
 - a lamp for emitting a lights;
 - dichroic mirrors for receiving the light emitted from the lamp and separating B (Blue) light, G (Green) light, and R (Red) light whose polarization components being arrayed into respective optical paths;
 - first, second, and third LCoS (Liquid Crystal on Silicon) panels for changing a phase of the respective B, G, and R lights;
 - first, second, and third wire grid type PBSs (Polarized Beam Splitters) for transmitting the lights that are separated into respective optical paths by the dichroic mirror, and reflecting the lights whose phases are changed at the first, second, and third LCoS panels; and

an X-prism for combining the respective R, G, and B lights reflected by the wire grid type PBSs and permitting the combined lights to incident on a projection lens.

4. (Original) The reflective illuminating optical system according to claim 3, wherein a polarization plate is formed between the X-prism and each of the wire grid type PBSs.

5. (Original) The reflective illuminating optical system according to claim 3, wherein at least one relay lens is formed on an optical path that the B, G, or R light passes through.

6. (Original) The reflective illuminating optical system according to claim 3, wherein the dichroic mirrors are composed of:

a first dichroic mirror for transmitting the B light and reflecting the R light; and

a second dichroic mirror for transmitting the R light out of the transmitted G and R lights, and reflecting the G light out of the transmitted G and R lights.

7. (Original) The reflective illuminating optical system according to claim 3, wherein the wire grid type PBS is a film type.